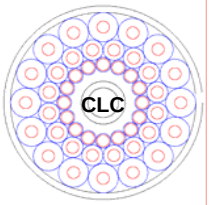


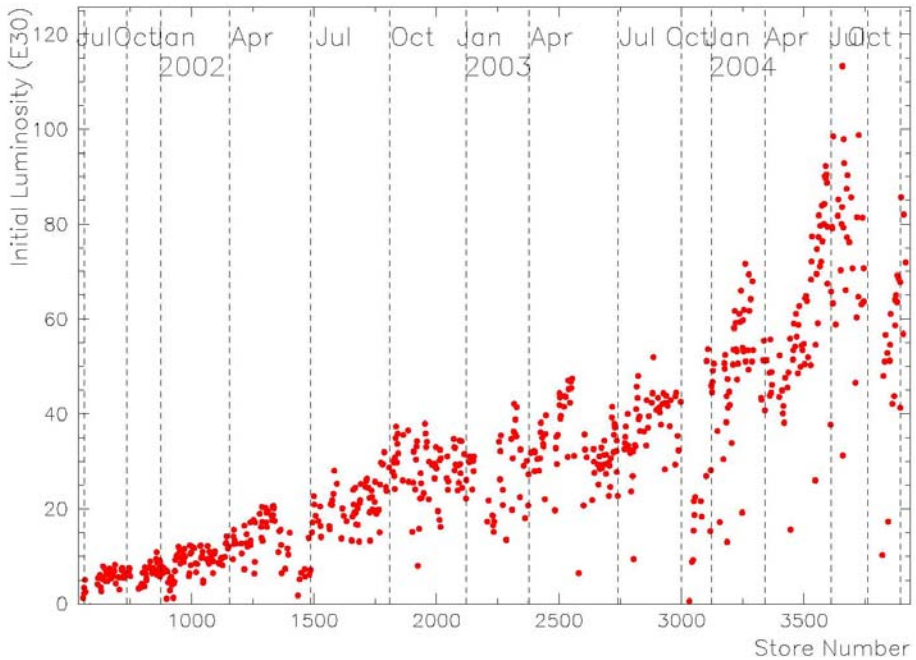
Status of CLC after shutwown & further check on losses

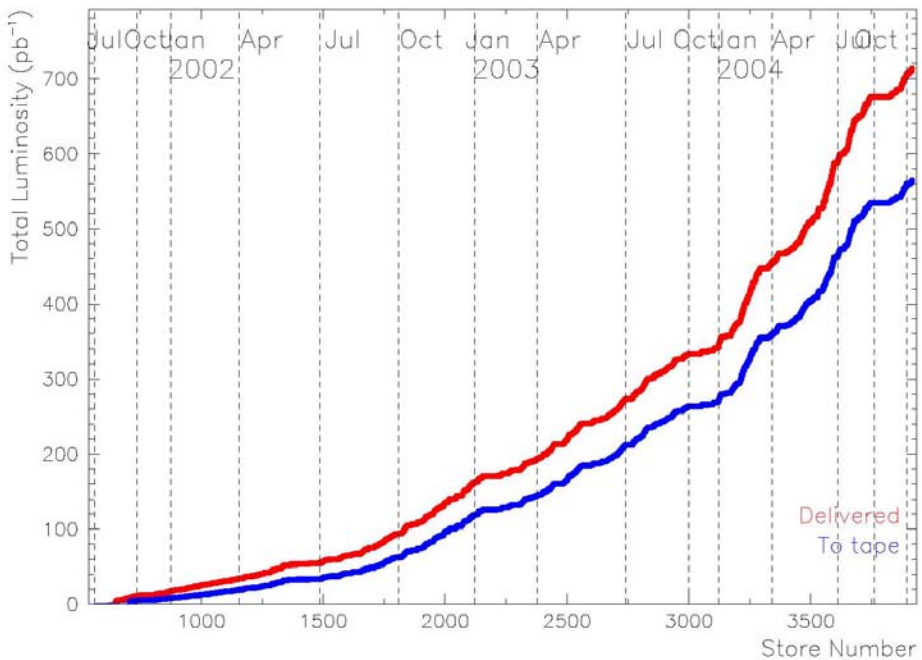
Roberto Rossin

Joint Luminosity Meeting 01/12/05

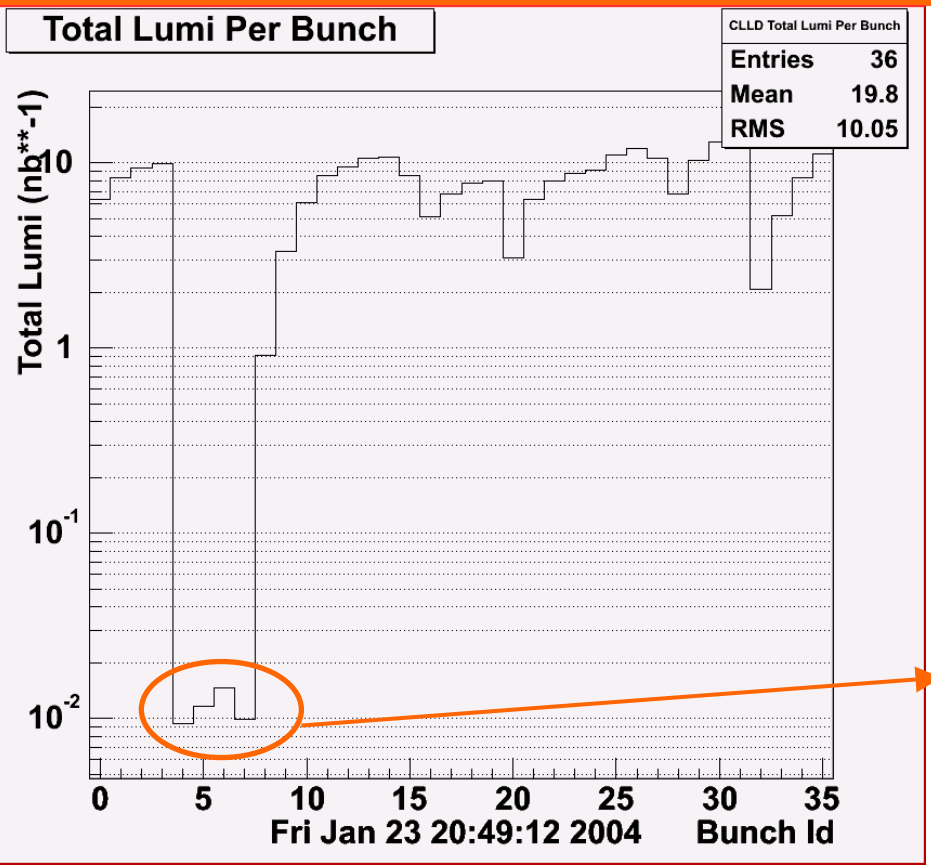
CLC after shutdown

- Repaired a few channels during shutdown
- After shutdown all systems working well
- Faster readout (got rid of external DPM)
- Measuring luminosity as usual: (=reliably!)





Further checks on impact of losses



Jan 23, store 3187, run 178339

4 anti proton bunches lost during injection.

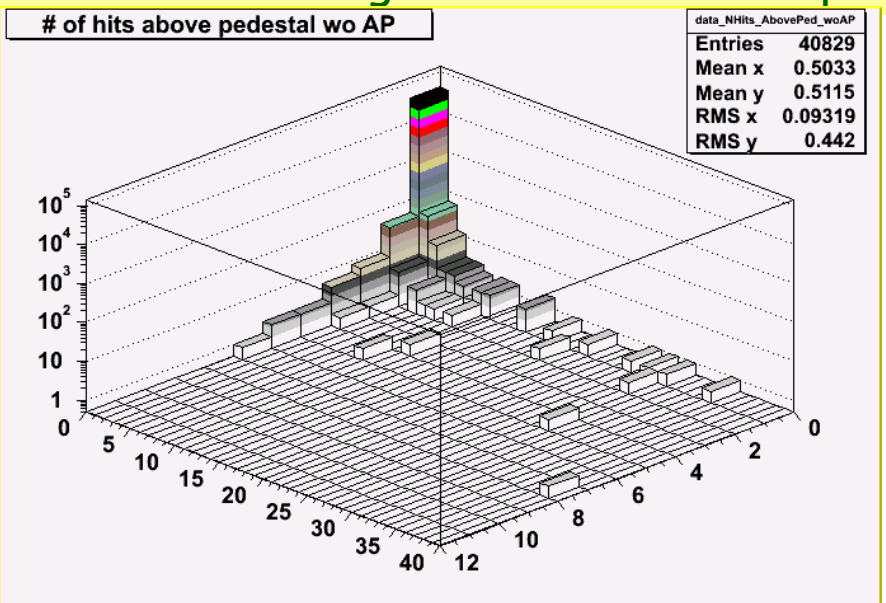
Store with 36x32.

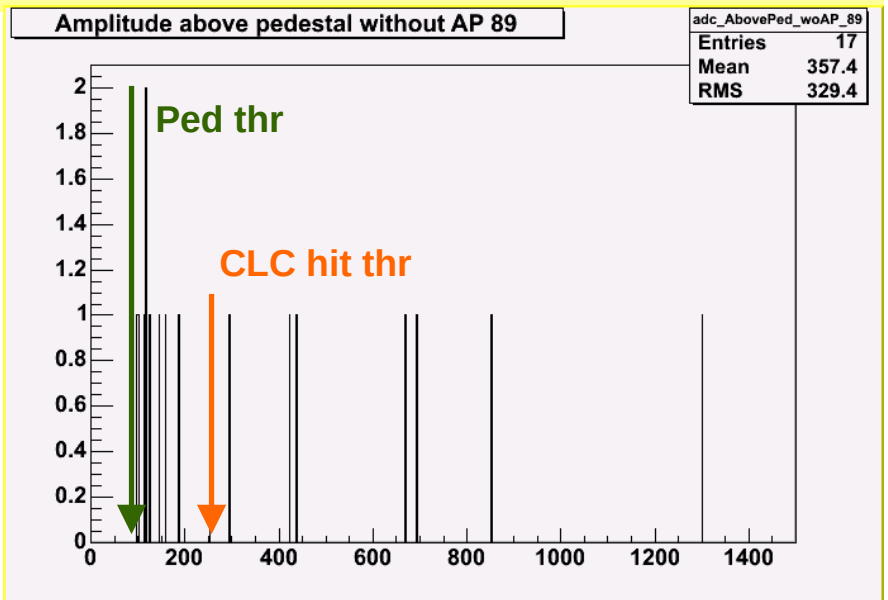
Losses ~ 5KHz

Empty bunches show very low luminosity (>600 times smaller than the average).

Further checks on impact of losses: method

- Look at the bunches with no AP.
- Fill 2D histogram with all hits above pedestal (they are NOT CLC hits).
- Fill 96 histos with amplitudes above pedestal.
  - Pick randomly from the 2D histo and add hits on CLC (>250AC). More conservative. We show results based on this.
  - Pick randomly from the 2D histo and pick random amplitude from 1D single-channel histograms. More correct.
- To simulate higher losses rate we pile-up random extractions.





Further checks on impact of losses: results & conclusions

Plugged the algorithm into a set of MC simulation with nominal luminosity up to >200E30 $cm^{-2}s^{-1}$ and with simulated losses up to 150KHz (CDF is off if >30KHz)

μ nominal	μ no losses	μ 30 KHz	Δμ 30 KHz	μ 60 KHz	Δμ 60 KHz	μ 150 KHz	Δμ 150 KHz
0		2.58E-03 L=0.073		0.0054 L=0.152		0.0145 L=0.41	
1	0.994	0.999	0.46%	1.003	0.93%	1.026	3.19%
2	2.010	2.010	0.02%	2.013	0.16%	2.039	1.46%
3	2.992	2.998	0.18%	3.006	0.44%	3.030	1.26%
4	4.014	4.023	0.22%	4.028	0.35%	4.051	0.92%
5	5.070	5.090	0.40%	5.090	0.40%	5.154	1.66%
6	6.043	6.054	0.19%	6.064	0.35%	6.076	0.55%
7							
8	7.913	7.913	0.00%	7.994	1.02%	7.994	1.02%
9	8.997	8.997	0.00%	8.997	0.00%	8.997	0.00%

- Losses simulation shows that (up to *acceptable* losses level, i.e. <30KHz) the CLC measurement is not affected.
- This is in good agreement with a direct measurement performed on data (see Joint Luminosity meeting 7/13/04)